

Remarks

The Office Action mailed March 1, 2006 has been carefully considered. The Attorney for the Applicants wishes to thank Examiner Sastri for a courteous and helpful interview on May 24, 2006.

Claims 1-5, 11-19, 24, 27 and 28 have been amended and Claims 33-35 have been newly added. No new material has been added to the currently amended or newly added claims.

In paragraphs 2-5, the Examiner rejected claims 1-32 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-46 of copending application 11/301,359 to McIntosh et al. and claims 1-14, 23, 25-28, 31-32, 34-37, and 46-62 of copending application 11/153,190 to Qin et al. (published as US2005/0256469A1). It is noted to the Examiner, there was an error in the numerical reference to US2005/056469A1 in the Office Action.

In paragraph 3 of the Office Action, the Examiner states "*Although the conflicting claims are not identical, the compositions and properties as recited in the instant claims overlap in scope with the copending claims.*" The Examiner concludes in paragraph 5 that "*the compositions and properties as recited in the instant claims overlap in scope with the copending claims.*" It is requested that the Examiner provide clarification on this stated conclusion used to establish the double patenting rejection. It appears to be different than the test provided in section 804 of the MPEP wherein it is stated that this type of double patenting rejection is limited to applications having conflicting claims (e.g., where a claim in an application is not patentably distinct from a claim in a patent or a patent application.).

The copending application 11/301,359 to McIntosh et al. is commonly owned by Stockhausen, Inc. Attached is a Terminal Disclaimer with respect to copending application 11/301,359 to McIntosh et al.

In addition, during an interview with Examiner Sastri on May 31, 2006 regarding copending patent application 10/424,195 to Smith et al., Examiner Sastri stated that she would reject claims 1-32 of the present application under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-46 of copending application 10/424,195 in a future office action of the present application. Copending application

10/424,195 is commonly owned by Stockhausen Inc. Accordingly, attached is a Terminal Disclaimer with respect to copending application 10/424,195 to Smith et al.

In regards to the copending application 11/153,190 to Qin et al., the copending application is not owned by the owner of the present application. In addition, the claims in the copending application are patentably distinct from the claims in the present application. The claims of the present application are directed to superabsorbent polymers of a certain and defined composition and having certain properties. The claims in the copending Qin et al. application are directed to absorbent structures that include superabsorbent polymers having certain properties but do not include any limitations on compositions, as found in the present claims. In particular, Qin et al. does not include the surface component, thermoplastic polymer resin, in the claims or in the specification.

The present application is in class/subclass 525/244 which is directed to contacting a solid polymer derived from ethylenic reactants only with an ethylenic reactant in the presence of a specified material, whereas Qin et al. is being prosecuted in class/subclass 442/327 which is directed to non-woven fabric, a completely different type of invention.

Unexamined claim 1 of Qin et al. reads as follows:

An absorbent structure comprising at least in part a superabsorbent material having a retention capacity (CRC) as determined by a Centrifuge Retention Capacity Test of at least about 25 g/g and a free swell gel bed permeability (GBP) as determined by a Free Swell Gel Bed Permeability Test of at least 575 x10⁻⁹cm².

The term “absorbent structure” as used in the claims in Qin et al. is used in the context of an absorbent core or absorbent composite of hydrophilic fibers and superabsorbent material as illustrated in the following paragraphs [0003], [0004], [0005], [0030], and [0123]-[0127]. In particular, Table 4 shows the amount of superabsorbent material to range from 45 to 65% of the absorbent composite structure.

In addition to the above paragraph, the present application specifically requires thermoplastic polymer as a surface additive, whereas the claims in the copending Qin et al. application are not directed to thermoplastic polymer coated superabsorbent polymers and do not

include thermoplastic polymer in the claims. Qin et al. does not disclose the use of thermoplastic polymer resin as a surface additive in the specification.

Claims 46-62 in the Qin et al. reference were discussed with Examiner Sastri during the telephonic interview of May 24, 2006 regarding the present application, and also during the telephonic interview of May 31, 2006 with respect to copending application 10/424, 195. It is the position of the Attorney for the Applicants that claims 46-62 are also patentably distinct from the present claims in that none of the claims claim the present invention and do not include a surface treatment of a thermoplastic polymer resin as provided in the present claims. Furthermore, claim 62 of Qin et al. is directed to an absorbent structure comprising at least in part a superabsorbent material comprising a crosslinked superabsorbent polymer of a combination of polymers comprising from about 55 to about 99.9 weight percent of polymerizable unsaturated acid group containing monomers, the superabsorbent material further comprising an internal crosslinking agent, a surface crosslinking agent applied to the surface of the superabsorbent polymer, and a further component selected from the group consisting of a penetration modifier applied to the surface of the superabsorbent polymer, a multivalent metal salt on the surface of the superabsorbent polymer, a water-insoluble, inorganic powder, and combinations thereof. However, as discussed on May 31, 2006, claim 62 does not disclose the amounts of the components and fails to disclose the properties of the superabsorbent polymer composition. Since claim 62 fails to disclose the amounts of the components, one cannot assume the superabsorbent material of claim 62 would have the same properties as the present invention.

Based on the difference of the classification by the USPTO, the differences of the absorbent composite structure and superabsorbent polymer, the compositions in the claims of the present application and Qin et al., the Qin et al. copending application should not be considered as double patenting by the standard as set forth in MPEP 804. In view of the foregoing, it is requested the Examiner withdraw the rejection of Claims 1-32 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Qin et al.

In paragraphs 4 and 5, the Examiner states that patent applications 11/301,359 and 11/153,190 are of common ownership. The Examiner is directed to information in these applications that application 11/301359 is assigned to Stockhausen Inc. of Greensboro, NC and application 11/153,190 is assigned to Kimberly-Clark WorldWide Inc. of Neenah WI. .

In paragraphs 6 and 7, Claims 1-32 are rejected under 35 USC 112, second paragraph as being indefinite because the instant claims lack clarity for component (d) i.e., penetration modifiers. The Office Action states that the “Instant specification discloses thermoplastic resin, polyethylene glycol, surfactant etc as penetration modifiers. It is noted that (d) may be the same as (f) or (h).” The Attorney for applicants respectfully disagrees with the Examiner that penetration modifiers lack clarity.

MPEP 706.03(d) and 2171 – 2174 discuss rejections under 35 USC 112, second paragraph. In 2173.05(o) of the MPEP, it is stated that “[t]here is no per se rule that ‘double inclusion’ is improper in a claim.” In re Kelly, 305 F.2d 909, 916, 134 USPQ 397, 402 (CCPA 1962). This section goes on to state that “[t]he governing consideration is not *double inclusion*, but rather is what is a reasonable construction of the language of the claims.”

It will be shown that a penetration modifier is well defined in the specification and the claims of the present invention. The term penetration modifier is defined in paragraph [0029] of the specification including products that are preferred penetration modifiers. In particular penetration modifiers are part of the invention and used to alter the penetration depth of surface modifying agents into the superabsorbent polymer particle. In addition to the foregoing, penetration is clearly set forth as an element in claims 1, 11, and 24. In view of the foregoing, it is requested that the rejection of Claims 1-32 under 35 USC 112, second paragraph as being indefinite because the instant claims lack clarity for component (d) i.e. penetration modifiers be withdrawn.

In paragraph 1 of the Office Action, the Examiner has maintained the rejection of claims 1-32 under 35 USC 103(a) as being unpatentable over Harada et al. (EP 0827753 A2) or Choi et al. (US 5,032,628) individually, in view of Nagata et al. (US 5,567,744) as sustained.

The attached Affidavit of Mr. Joy clearly shows that the product of Harada et al. does not inherently or necessarily possess the characteristics attributed to the product of the claims of the present invention.

The intrinsic properties of Harada et al. are quite different then the intrinsic properties of the present invention as set forth in the claims of the present invention. Mr. Joy’s attached Affidavit sets forth two comparative examples of superabsorbent polymers. Superabsorbent Prepolymer A was prepared substantially similar to that of Example 25 of Harada et al;

Superabsorbent Polymer B was prepared substantially similar to that of Example 27 of Harada et al; and Superabsorbent Polymer C was prepared by surface treating Superabsorbent Prepolymer A in accordance with the procedure wherein the surface treatment included an inorganic powder, 0.5 grams of precipitated silica.

The intrinsic properties of Superabsorbent Polymer B and C were measured and are set forth in Mr. Joy's Affidavit. In addition, Mr. Joy calculated the value of $[54000e^{-0.18x} + 75] \times 10^{-9} \text{cm}^2$ as set forth in claim 2.

Claim 1 requires the gel bed permeability numeric value Gel Bed Permeability is at least about $500 \times 10^{-9} \text{cm}^2$. According to Mr. Joy's Affidavit, the Gel Bed Permeability of Superabsorbent Polymer B is $7 \times 10^{-9} \text{cm}^2$ and the Centrifuge Retention Capacity is 40g/g. Hence, Superabsorbent Polymer B does not have the intrinsic property of Claim 1 or dependent claims. The foregoing arguments apply to all the remaining claims under consideration in the present application.

The Gel Bed Permeability of Superabsorbent Polymer C, which includes an inorganic material, was found to be $16 \times 10^{-9} \text{cm}^2$, and have a Centrifuge Retention Capacity of 41.8g/g. Hence, Superabsorbent Polymer C does not have the intrinsic property of Claim 1 or dependent claims including claims 5-10. Furthermore, Superabsorbent Polymer C does not meet the remaining claims for the reasons set forth above for Superabsorbent Polymer B. Based on the foregoing information, it is requested that the rejection of claims 1-32 under 35 USC 103(a) as being unpatentable over Harada et al. (EP 0827753 A2) individually, in view of Nagata et al. (US 5,567,744) be withdrawn.

Choi et al. cannot have the properties of the present invention for the reasons set forth herein and the rejection of claims 1-32 over Choi et al. in view of Nagata et al. should be withdrawn. The Examiner stated the applicant's arguments were not found persuasive because the Centrifuge Retention Capacity and Gel Bed Permeability properties are intrinsic to the material. As stated in the Office Action, "*[i]t is the examiner's position that if the composition as recited in the claims is taught by the combination of references, the composition must intrinsically have the Centrifuge Retention Capacity and Gel Bed Permeability properties when obtained in the particle size range of 300-600 microns as used in the instant invention.*" Choi et al. specifically teaches away from using it in larger particles.

The tests to measure the Centrifuge Retention Capacity and Gel Bed Permeability properties are set forth in the specification on pages 18 to 22 for Gel Bed Permeability and on pages 23 to 25 for the Centrifuge Retention Capacity Test. Each of these two tests require the tested sample to be prepared from particles retained on a U.S. standard 50 mesh screen (300 μ m opening) resulting in superabsorbent polymer sample having particles sized in the range of about 300 to about 600 microns. See pages 20 and 23 of the specification.

In addition to this limitation of measuring the product under the Centrifuge Retention Capacity and Gel Bed Permeability tests, Choi et al. specifically discloses at column 4 lines 27-30 that the water absorptive rate of the product is decreased when the particle size is over 150 μ m." The smaller sized superabsorbent polymer particles of Choi et al were not designed to be increased in size, as suggested by the Examiner. Increase in size would destroy the invention of Choi et al. Based on the foregoing, Choi et al. does not disclose the superabsorbent particles of the present invention and should not be combined with other references such as Nagata et al. directed to superabsorbent polymer composition particles having a particle size range of 300-600 microns. This would refute the statement made by the Examiner that "*if the composition as recited in the claims is taught by the combination of references, the composition must intrinsically have the Centrifuge Retention Capacity and Gel Bed Permeability properties when obtained in the particle size range of 300-600 microns as used in the instant invention*". Based on the foregoing information, it is requested that the rejection of claims 1-32 under 35 USC 103(a) as being unpatentable over Choi et al. (US 5,032,628) individually, in view of Nagata et al. (US 5,567,744) be withdrawn.

Nagata et al. does not disclose a superabsorbent polymer of the present invention including from about 0.01 to about 0.5wt % of thermoplastic polymer. Nagata et al. discloses using from 1 to 100 parts by weight of thermoplastic polymer. Hence, when taken together, Harada et al. or Choi et al. individually, in view of Nagata et al. does not disclose the present invention.

In paragraph 9 of the Office Action, claims 1-32 are rejected under 35 USC 103(a) as being unpatentable over either Kajikawa et al (US 6716894) or Nagasuna et al (US2003/018115) in view of either Engelhart et al (US5731365) or Ball et al. (WO/9118042) or Mukaida et al (EP0612533B1). According to the Office Action, the Examiner concludes that the difference

between the prior art and the instant invention is that the prior art does not teach or suggest thermoplastic resins in the water absorbent compositions. In addition, the prior art differs from the instant invention in that the prior art does not teach or suggest the properties of the present invention.

In addition to the foregoing, Nagasuna et al. and Mukaida et al. disclose that there are adverse effects to the properties of the coated superabsorbent polymer compositions, which the Applicants believe is a significant difference between the prior art and the claimed invention. In particular, Nagasuna et al. discloses that coating of a superabsorbent polymer particle with a binder type component is a problem due to restrictions on the swelling of the superabsorbent polymer particle due to the restraint of the binder component. This adverse effect of coating a superabsorbent polymer with a binder type component is discussed in paragraph [0009] of Nagasuna et al. and in Mukaida et al. on page 2, beginning at line 9. This disclosed adverse effect appears to constitute a significant difference between the Kajikawa et al. and Nagasuna et al. references and the claimed invention.

In addition, objection is taken to the statement in the Office Action that “*the properties recited in the instant claims must intrinsically be present in the resultant product.*” This statement is not what the MPEP or the case law states. Section 2112 IV of the MPEP specifically requires for the Examiner to establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill. Inherency, however may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.

At best, the Examiner has only established the mere *possibility* that the references cited in the Office Action possess the same physical and mechanical properties of the claimed superabsorbent polymers. But the mere possibility that a prior art compound may possess the same properties as the claimed compound is insufficient to establish a *prima facie* case of anticipation by inherency. See MPEP 2112 IV as cited above. According to the Federal Circuit:

Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.

Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1269 (Fed. Cir. 1991)

(emphasis added) (quoting *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981); emphasis added); *see also Transclean Corp. v. Bridgewood Serv., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002); *Eli Lilly & Co. v. Barr Labs., Inc.* 251 F.3d 955, 970 (Fed. Cir. 2001).

Instead, the Federal Circuit and its predecessor courts have repeatedly held that, in order to establish anticipation by inherency, the examiner is required to cite extrinsic evidence that “must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *Continental Can*, 948 F.2d at 1268 (emphasis added).

In the Office Action, the Examiner states that “[t]he properties recited in the instant claims must intrinsically be present in the resultant product.” As set forth above, this criteria is not the standard set forth in the MPEP or the case law. The Examiner has not provided any facts and/or technical reasoning that would reasonably support the demonstration that these allegedly inherent characteristics would necessarily flow from the teachings of the applied prior art. Based on this lack of showing alone, Applicants request the rejections be withdrawn or the Examiner provide facts and/or technical reasoning that would support the demonstration that these allegedly inherent characteristics would necessarily flow from the teachings of the applied prior art.

Kajikawa et al. is directed to a superabsorbent polymer and a process to make superabsorbent polymers wherein magnets are used to remove metal from the superabsorbent polymer during the process. Kajikawa et al. does not disclose or suggest a high permeability superabsorbent polymer coated with a thermoplastic polymer as set forth in the claims of the present invention. In particular, Kajikawa et al. fails to disclose coating of a thermoplastic polymer resin onto the surface of a surface treated superabsorbent polymer wherein the superabsorbent polymer is selected from polyethylene, polyesters, polyurethanes, linear low density polyethylene (LLDPE), ethylene acrylic acid copolymer (EAA), styrene copolymers, ethylene alkyl methacrylate copolymer (EMA), polypropylene (PP), ethylene vinyl acetate

copolymer (EVA) or blends thereof, or copolymers thereof. Furthermore, the thermoplastic coated superabsorbent polymers of the present invention have certain properties including lower dust values as set forth in the present application.

Unlike the present invention, Kajikawa et al. is directed to increasing the permeability results by decreasing the fine powder and installation of magnets in the production line. In addition, Kajikawa et al. does not deal with the issue of the restrictions from the use of a thermoplastic polymer as a surface additive. Kajikawa et al. discloses in column 11 the following: “[i]n addition to the surface-crosslinking in the present invention, the production process may further comprise a step of giving various functions to the water-absorbent resin, if necessary, such as a step of adding materials such as deodorants, antimicrobial agents, perfumes, foaming agents, pigments, dyes, hydrophilic short fibers, plasticizers, pressure-sensitive adhesives, surfactants, manure, oxidants, reductants, water, salts, chelating agents, disinfectants, hydrophilic polymers such as polyethylene glycols and polyethylenimine, hydrophobic polymers such as paraffin, thermoplastic resins such as polyethylene and polypropylene, and thermosetting resins such as polyester resins and urea resins. The amount of these additives as used is in the range of 0 to 10 parts by mass, favorably 0 to 1 part by mass, per 100 parts by mass of the water-absorbent resin. Incidentally, these products after the surface-crosslinking or the addition of the additive may also be generally referred to as water-absorbent resins in the present invention.” At best Kajikawa et al. suggests to try many different materials for many different results.

Nagasuna et al. is directed to a superabsorbent polymer that is fixed to a base material with a hot melt adhesive. Nagasuna et al. does not disclose or suggest a high permeability superabsorbent polymer coated with a thermoplastic polymer as set forth in the claims of the present invention. In fact and contrary to it being obvious to combine thermoplastic polymer coating to a superabsorbent polymer particle, Nagasuna et al. in paragraph [0009] discloses that there is a problem of restrictions on the swelling of the water-absorbent resin due to the restraint by the binder force. An example of binder restriction disclosed in Nagasuna et al. in paragraph [0008] is the “surfaces of a water-absorbent resin having an anionic group are coated with a cationic polymer so as to fix particles to each other by adhesion when swelling them.”

Furthermore, paragraph [0012] of Nagasuna et al. specifically states that water absorption properties such as capillary absorption capacity, of the water-absorption resin have turned out to be influenced greatly by the hitherto existing fixation means. In conclusion, Nagasuna et al. clearly discloses that adding a binder material such as a thermoplastic polymer material to the surface of a superabsorbent polymer adversely affects the properties of the superabsorbent polymer composition including the swelling of a water-absorbent resin. Also, Nagasuna et al. teaches one skilled in the art to affix the binder material to the base material in order not to adversely affect the water-absorbent resin.

In the Office Action, the Examiner has stated that it would have been obvious to one skilled in the art at the time the invention was made to coat water absorbent resin of Kajikawa et al. or Nagasuna et al. by the binder materials disclosed in the secondary references. However, the Examiners statement is contradicted by the statements in Nagasuna et al. and Mukaida et al. wherein both references cited the adverse effect of combining a superabsorbent polymer particle with a binder component such as a thermoplastic polymer. In view of this contradiction, coating a superabsorbent polymer particle with a thermoplastic coating would not be obvious as suggested by the Examiner.

In paragraph 9 of the Office Action, claims 1-32 are rejected under 35 USC 103(a) as being unpatentable over either Kajikawa et al (US 6716894) or Nagasuna et al (US2003/018115) in view of either Engelhardt et al. (US5731365) or Ball et al. (WO/9118042) or Mukaida et al. (EP0612533B1). The following are remarks regarding the secondary references, Engelhart et al , Ball et al., and Mukaida et al.

Engelhardt et al. (US5731365) is directed to coating superabsorbent polymers which are coated with non-reactive, insoluble film-forming polymers as disclosed in the abstract and in column 2 lines 66-67, columns 3 and 4. In particular Engelhardt et al. discloses mixing a dispersion with the superabsorbent polymer.

As set forth above, Nagasuna et al. discloses that coating a superabsorbent particle with a binder adversely affects the properties of the superabsorbent polymer composition due to restrictions on swellability. In view of the foregoing, it is requested that the rejection of claims 1-32 under 35 USC 103(a) as being unpatentable over either Kajikawa et al. or Nagasuna et al. in view of either Engelhart et al. be withdrawn.

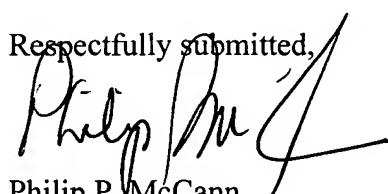
Ball et al. discloses on page 11, beginning at line 8, at least one part of thermoplastic polymer per hundred parts by weight of water-absorbent resin and up to 20 parts by weight of thermoplastic polymer. Also, it is disclosed on page 13 line 20, “[a]s the thermoplastic polymer bound to the surface on the water-absorbent resin particle, if too much thermoplastic polymer is used, the ability of water to come in contact with the water-absorbent resin particle is significantly reduced.” Since the present invention is directed to a composition including up to 0.5% by weight of thermoplastic polymer, then Ball et al does not disclose the present invention. In view of the foregoing it is requested that the rejection of claims 1-32 under 35 USC 103(a) as being unpatentable over either Kajikawa et al. or Nagasuna et al. in view of Ball et al. be withdrawn.

Mukaida et al. discloses a water absorbent composition comprising 100 parts by weight of water absorbing polymer particles and 0.5 to 30 parts of a resin powder having heat adhesion property at 50-200°C wherein the resin powder partially covers the superabsorbent polymer. Similar to the reference Nagasuna et al., Mukaida discloses that the patent is directed to the fixation between water absorbing polymers and fibers. In fact on page 2, beginning at line 29, Mukaida et al. discloses, as did Nagasuna et al. that although the thermoplastic polymer improves the adhesion property to fibers etc., it has the defect that the water absorbing properties which the water absorbing polymer originally possessed, in particular the water absorbing speed and initial absorption rate, are excessively degraded. It is, therefore difficult to apply the thermoplastic polymer coated superabsorbent polymer composition to sanitary goods such as disposable diapers. Mukaida et al. specifically discloses that the resin powder only partially covers the superabsorbent polymer particles. Mukaida et al. discloses at page 5, lines 36-38 that “[c]omplete coverage of the water absorbing polymer particles (A) with the resin (B) excessively decreases the water absorption speed and initial absorption rate of the composition.”

The Examiner’s statement that “[t]he properties as recited in the instant claims must intrinsically be present in the resultant product” is not supported by the disclosures or the case law. In view of the foregoing it is requested that the rejection of claims 1-32 under 35 USC 103(a) as being unpatentable over either Kajikawa et al. or Nagasuna et al. in view of Mukaida et al. be withdrawn.

In light of the amendments and remarks presented herein, Applicants submit that Claims 1-36 of the case are in condition for immediate allowance. If Examiner Sastri has any further questions or if any issues remain unresolved, the Examiner is invited to telephone Applicants' counsel at the number provided below.

Respectfully submitted,



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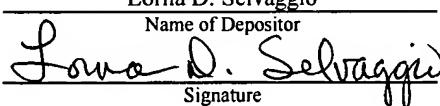
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